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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,799

06/07/2005

Hideo Nagata

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EXAMINER

LAM, KENNETH T

ART UNIT

PAPER NUMBER

2611

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DELIVERY MODE

04/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,799	Applicant(s) NAGATA ET AL.	
	Examiner KENNETH LAM	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/07/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re Claims 1, 3 and 4 recite “a compensation computation section that generates a compensation signal for suppressing distortion components of said baseband signal so that a first phase component and a first amplitude component when power is identical in said compensation signal differ when current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power”, the recited claim limitation is unclear to the examiner. The claim limitation could mean “a first phase component differs from a first amplitude component” or “the current power differs from the past power”. For prior art rejection on the merits, the Examiner construed the claim limitation as: “a compensation computation section that generates a compensation signal for suppressing distortion components of said baseband signal so that said compensation signal differs when compared to the current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power”.

Claim 2 recites “said compensation computation section detects said distortion components that are nonlinear and for which a second amplitude component and a second phase component when power is identical in said distortion components differ when current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power”, the recited claim limitation is unclear to the examiner. The claim limitation could mean “a first phase component differs from a first amplitude component” or “the current power differs from the past power”. For prior art rejection on

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the merits, the Examiner construed the claim limitation as: "said compensation computation section detects said distortion components that are nonlinear and for which said distortion components differ when current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (*See MPEP Ch. 2141*)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ode et al. (Ode herein after) (US 2001/0007435 A1).

Re Claim 1, Ode discloses a distortion compensation apparatus comprising:

a power calculation section (Power calculation unit **31**, Figure 30) that measures baseband signal power at predetermined time intervals ([0205]);

a compensation computation section (Distortion Compensation Coefficient Calculation Unit **27**, Figure 30) that generates a compensation signal for suppressing distortion components of said baseband signal so that said compensation signal differ when compare to the current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power ([0206]-[0210]);

a compensation signal combining section (Predistortion Unit **23**, Figure 30) that combines said compensation signal generated by said compensation computation section with said baseband signal ([0207]); and

an amplification section (Power amplifier **21**, Figure 30) that suppresses with said compensation signal said distortion components generated during amplification by amplifying said baseband signal with which said compensation signal is combined by said compensation signal combining section ([0207]).

Ode discloses the claimed invention except for current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power. It would have been an obvious matter of design choice to explicitly state the raising and falling with respect to past power solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with by detecting the difference between the transmit signal before the distortion compensation and the

feedback signal with the distortion compensation.

Re Claim 2, Ode discloses the distortion compensation apparatus according to claim 1, wherein said compensation computation section detects said distortion components that are nonlinear ([0209]) and for which said distortion components differ when current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past ([0207]), and generates said compensation signal that has said first amplitude component and said first phase component that are symmetrical to said second amplitude component and said second phase component in detected said distortion components with respect to a fixed value of said second amplitude component and said second phase component when said distortion components have a linear characteristic ([0210]).

Re Claim 3, Ode discloses a transmitting apparatus provided with a distortion compensation apparatus, said distortion compensation apparatus comprising:

a power calculation section (Power calculation unit **31**, Figure 30) that measures baseband signal power at predetermined time intervals ([0205]);

a compensation computation section (Distortion Compensation Coefficient Calculation Unit **27**, Figure 30) that generates a compensation signal for suppressing distortion components of said baseband signal so that said compensation signal differ when compare to the current power measured by said power calculation section is

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rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power ([0206]-[0210]);

a compensation signal combining section (Predistortion Unit **23**, Figure 30) that combines said compensation signal generated by said compensation computation section with said baseband signal ([0207]); and

an amplification section (Power amplifier **21**, Figure 30) that suppresses with said compensation signal said distortion components generated during amplification by amplifying said baseband signal with which said compensation signal is combined by said compensation signal combining section ([0207]).

Ode discloses the claimed invention except for current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power. It would have been an obvious matter of design choice to explicitly state the raising and falling with respect to past power solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with by detecting the difference between the transmit signal before the distortion compensation and the feedback signal with the distortion compensation.

Re Claim 4, Ode discloses a distortion compensation method comprising:

a step of measuring baseband signal power at predetermined time intervals (Power calculation unit **31**, Figure 30 [0205]);

a step of generating a compensation signal for suppressing distortion components of said baseband signal so that said compensation signal differ when compare to the current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power (Distortion Compensation Coefficient Calculation Unit **27**, Figure 30 [0206]-[0210]);

a step of combining generated said compensation signal with said baseband signal (Predistortion Unit **23**, Figure 30 [0207]); and

a step of suppressing with said compensation signal said distortion components generated during amplification by amplifying said baseband signal with which said compensation signal is combined (Power amplifier **21**, Figure 30 [0207]).

Ode discloses the claimed invention except for current power measured by said power calculation section is rising with respect to past power and when current power measured by said power calculation section is falling with respect to past power. It would have been an obvious matter of design choice to explicitly state the raising and falling with respect to past power solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with by detecting the difference between the transmit signal before the distortion compensation and the feedback signal with the distortion compensation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH LAM whose telephone number is (571)270-1862. The examiner can normally be reached on Mon - Thu 7:30 am - 5:00 pm EST
ALT Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KENNETH LAM/
Examiner, Art Unit 2611
04/25/2008
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611